CLAIM

What is claimed:

1. An article comprising:

a rotatable base having one or more through channels that permit fluid flow between an inner surface and a outer surface of said base;

a porous material covering at least a portion of the outer surface of said base, said porous material interlocked with the rotatable base.

2. The article of claim 1 wherein the porous material fills one or more of said through channels.

3. The article of claim 1 wherein said porous material covers a portion of the inner surface of said rotatable base.

4. The article of claim 1 said rotatable base further include a fitting for mounting said base to a rotating shaft.

5. The article of claim 1 wherein said porous material is a pad having one or more nodules.

6. The article of claim 1 wherein the porous material interlocks with the rotatable base through an adhering porous pad layer.

7. The article of claim 1 wherein porous pad interlocks with the rotatable base by filling one or more of said through channels.

8. The article of claim 1 wherein the porous material is cast or molded on the outer surface of said base.

9. An article comprising:

a rotatable base with an adherent porous pad material having protrusions cast on said rotatable base, said porous pad covering at least a portion of the rotatable base surface, said adherent porous pad permitting fluid flow through the adherent porous pad.

10. The article of claim 9 wherein the rotatable base includes a first layer of an adherent porous material, said adherent porous pad material having protrusions cast on top of said first layer.

11. The article of claim 9 wherein the rotatable base is a housing having through holes.

12. An article for removing material from a substrate comprising:

a rotatable base, said base including an inner surface and an outer surface, said rotatable base having a plurality of channels; and

a porous pad material covering at least a portion of the outer surface of said base, said porous pad material filling one or more of said channels in said base and interlocking said porous pad material with said base.

13. The article of claim 12 wherein the channels fluidly connect said inner surface with said outer surface of the base.

14. The article of claim 12 wherein said base is a tube.

15. The article of claim 12 wherein said base is a disk.

16. The article of claim 12 further wherein said porous pad material covering at least a portion of the outer surface of said base includes protrusions on the surface of said porous pad material.

17. The article of claim 12 wherein said pad material covers a portion of the inner surface of said base.

18. The article of claim 12 wherein the pad has a monolithic structure.

19. The article of claim 12 wherein the porous pad material includes polyvinylalcohol.

20. The article of claim 12 wherein said porous pad material distributes fluid from the inner surface of said base to the outer surface of said base through said porous pad material.

21. An article for removing material from a substrate comprising:

a rotatable base including an inner surface and an outer surface;

a porous pad material covering at least a portion of the outer surface of said base for removing material from substrates, said porous pad material interlocking with said base; said porous pad material interlocked with said base maintaining the alignment of protrusions on the surface of said porous pad material.

22. The article of claim 21 wherein the base further includes one or mode through channels fluidly connecting said inner surface with said outer surface of said base.

23. The article of claim 21 further including a source of pressurized fluid, said pressurized fluid in fluid communication with the porous material in the channels of said base through the inner surface of said base.

24. The article of claim 21 wherein said porous pad material distributes fluid from the inner surface of said base to the outer surface of said base through said porous pad material.

25. A method of making a monolithic porous pad on a base comprising:

pouring a combination of un-polymerized sponge monomer and a catalyst into a mold including said base, said combination filling one or more channels in said base;

curing said combination to form a porous pad material interlocked with said base;

releasing said porous pad material interlocked with said base from said mold.

26. The method of claim 25 wherein a surface of said mold is treated with release compound.

27. The method of claim 25 wherein the sponge material includes polyvinylalcohol.

28. The method of claim 25 wherein the base is a rotatable base.

29. The method of claim 25 wherein the base includes channels.

30. The method of claim 25 wherein the rotatable base include a first porous adherent layer on said base.

31. An article comprising:

a rotatable base having one or more through channels that permit fluid flow between an inner surface and a outer surface of said base;

a molded porous material covering at least a portion of the outer surface of said base, said porous material interlocked with the rotatable base.

32. The article of claim 31 wherein the porous material fills one or more of said through channels.

33. The article of claim 31 wherein said porous material covers a portion of the inner surface of said rotatable base.

34. The article of claim 31 said rotatable base further include a fitting for mounting said base to a rotating shaft.

35. The article of claim 31 wherein said porous material is a pad having one or more nodules.

36. The article of claim 31 wherein the porous material interlocks with the rotatable base through an adhering porous pad layer.

37. The article of claim 31 wherein porous pad interlocks with the rotatable base by filling one or more of said through channels.

38. The article of claim 31 wherein the porous material is cast or molded on the outer surface of said base.

39. A method of coating a substrate comprising:

providing a fluid into the core of a porous pad material interlocked with a rotatable base having through holes;

applying said fluid through said porous pad material to a substrate while rotating said base.

40. The method of claim 39 further including the act of curing the fluid applied to the substrate.

41. A method of cleaning a substrate comprising:

contacting said substrate with a porous pad material interlocked with a rotatable base, said base including an inner surface and an outer surface; a plurality of through holes in said base for interlocking said porous pad material with said base; and a porous pad material covering at least a portion of the outer surface of said base for removing material from the substrates,

depositing onto said substrate a fluid for removing material from said substrate; and

removing material from said substrate by rotating said base.

42. Th method of claim 41 wherein the through holes of said porous pad fluidly connect said inner surface with the outer surface of the base to distribute said fluid to the porous pad surface.

43. The method of claim 41 further including the act of flushing a fluid through the porous pad to remove substrate material adhering to the porous pad.

44. The method of claim 41 wherein the material to be remove from the substrate is a thin film, particles, or a chemical residue.

45. The method of claim 41 wherein said porous pad material includes protrusions or recesses.

46. The method of claim 41 wherein the porous pad material covers the inner surface of said base.

47. The method of claim 41 wherein said wafer includes copper interconnects.

48. A method of cleaning a substrate comprising:

contacting said substrate with a rotating porous pad material, said pad covering a rotatable base, said base including an inner surface and an outer surface; a plurality of channels in said base for interlocking said porous pad

material with said base; said channels fluidly connecting said inner surface with said outer surface of the base, and a porous pad material covering at least a portion of the outer surface of said base for removing material from substrates,

depositing onto said substrate a fluid for removing material from said substrate through the porous pad material in the channels of said porous pad; and

removing material from said substrate by rotating said porous pad.

49. The method of claim 48 further including the act of flushing a fluid through the pad material to remove material adhering to the porous pad material.

50. The method of claim4 8 wherein the material to be remove from the substrate is a thin film, particles, or a chemical residue.

51. The method of claim 48 wherein said porous pad material includes protrusions or recesses.

52. The method of claim 48 wherein the porous pad material covers the inner surface of said base.

53. The method of claim 48 wherein the substrate includes copper interconnects.

54. The method of claim 48 wherein the material removed is an oxide of copper or silicon.

55. An article for removing material from a substrate comprising:

a rotatable base having one or more through channels that permit fluid flow between an inner surface and a outer surface of said base;

a porous material covering at least a portion of the outer surface of said base, said porous material interlocked with the rotatable base.

one or more fittings mating with said rotatable base.

56. The article of claim 55 wherein the porous pad material interlocks with the channels of the base.

57. The article of claim 55 wherein the porous pad material covering the base and interlocking with said channels fluidly connects the inner and outer surfaces of said base.

58. The article of claim 55 wherein said fittings are mated to said base by bonding.

59. The article of claim 55 wherein the fittings include a fluid fitting and a machine drive tool fitting.

60. The article of claim 55 wherein a the fluid fitting is a machine drive tool fitting.

61. The article of claim 55 wherein said rotatable base is adaptable to different material removal tools by mating fittings with said base.

62. An article for removing material from a substrate comprising:

a rotatable base interlocked with a porous pad material having protrusions, said base including an inner surface and an outer surface;

channels in the base for distributing fluid for removing material from a substrate to the porous pad material from said inner surface to said outer surface of said base; said porous pad material covering at least a portion of the outer surface of said base for removing material from substrates,

one or more fittings mating with said rotatable base.

63. The article of claim 62 wherein the porous pad material interlocks with the channels of the base.

64. The article of claim 62 wherein the porous pad material covering the base and interlocking with said channels fluidly connects the inner and outer surfaces of said base.

65. The article of claim 62 wherein said fittings are mated to said base by bonding.

66. The article of claim 62 wherein the fittings include a fluid fitting and a machine drive tool fitting.

67. The article of claim 62 wherein the fluid fitting is a machine drive tool fitting.

68. The article of claim 62 wherein said rotatable base can be used on different material removal tools by mating one or more fittings with said base.

69. The article of claim 62 wherein said rotatable base is a brush for scrubbing semiconductor wafers.